

REMARKS

The Office Action mailed December 18, 1998 has been reviewed and the comments of the Patent and Trademark Office have been considered. Claims 2 and 10 have been cancelled, claims 1 and 3-9 have been amended, and new claim 11 has been added. Thus, claims 1, 3-9 and 11 remain pending in the application and are submitted for reconsideration by the Examiner.

I.

The abstract was objected to as being too short. This objection is respectfully traversed in view of the above amendments and the following remarks. Enclosed on a separate sheet is a substitute "Abstract of the Disclosure" within the range of 50 to 250 words in compliance with MPEP § 608.01(b). OK.

With regard to the last reference cited on Applicants' Form PTO-1449 accompanying the Information Disclosure Statement filed July 24, 1998, a duplicate copy of the reference and a clean copy of the Form PTO-1449 are enclosed for the convenience of the Examiner. A copy of this reference was included with the Information Disclosure Statement as evidenced by the enclosed photocopy of the postcard receipt. The postcard receipt, which bears the stamp of the U.S. Patent and Trademark Office, acknowledges receipt of nine references including the reference that was allegedly not provided. It is respectfully submitted that the originally filed copy of the reference was misplaced by the U.S. Patent and Trademark Office, and that consideration of the reference should be made under 37 C.F.R. § 1.97(b), i.e., without payment of the fee required under 37 C.F.R. § 1.97(c). OK
no change -
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benefit
of doubt

The drawings were objected to under 37 C.F.R. § 1.83(a) for the reasons given in the paragraph at the top of page 4 of the Office Action. These objections are respectfully traversed in view of the proposed drawing corrections, the above amendments, and the following remarks. The "two sub-ducts" recited in claim 3 are shown at 26' and 28' in Figure 3. Claim 8 does not recite a "coupling" as asserted in the Office Action; however, sets of the lamellae 44 coupled together "in the manner of a blind" (page 6, lines 26-28) have been illustrated at 70 in Figure 3. Claim 10 has been cancelled. Thus, it is respectfully submitted that these objections should be withdrawn.

II.

Claims 1-10 were rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the paragraph straddling pages 2 and 3 of the Office Action. These rejections are respectfully traversed in view of the above amendments and the following remarks.

The Office Action asserts that the Figures are inconsistent with one another. Applicants disagree. In order to clarify the disclosure, Applicants have proposed corrections to the figures to more clearly indicate the relative arrangement of the three cross-section views. First, section line III-III is now indicated on Figure 2, and section lines I-I and II-II are now indicated on Figure 3. The respective cross-sections shown in Figures 1-3 are taken along mutually orthogonal planes as illustrated by the enclosed Exhibit A, which has been prepared for the Examiner's convenience. The present invention is shown schematically in Exhibit A as an elongated oval body for the ease of illustration. Second, Figure 3 has been re-scaled to correspond to Figures 1 and 2, and the additional features in each mixing space 50 to 56 have been shown. Specifically, the warm-air control elements 36 to 42 and their corresponding lamellae 44, and the flaps 30 and 32 have been shown in Figure 3 so as to be consistent with Figures 1 and 2.

Hatching lines and shading lines have also been added to the figures to further clarify the illustration of the present invention. No new matter has been added.

It is also noted that the Office Action incorrectly refers to "ducts 50, 52, 54 and 56." These reference numerals indicate individual "mixing spaces" defined in part by dividing the air-mixing space 45 with partition walls 46 and 48 (page 3, line 32 to page 4, line 2). The ducts that fed the temperature conditioned air from the mixing spaces 50-56 are indicated with reference numerals 58-64 (page 4, lines 3-5).

With regard to control element 42, mixing space 56, four warm-air control elements (36, 38, 40, 42) and four cold-air flaps (30, 30', 32, 32'), all of these features are illustrated in Figure 3, and at least some of these features are illustrated in each of Figures 1 and 2.

Claims 1-10 were also rejected under 35 U.S.C. § 112, second paragraph, for the reasons set forth on page 4 of the Office Action. These rejections are respectfully traversed in view of the above amendments and the following remarks. The claims have been amended as necessary to ensure the features of the present invention are positively recited.

III.

Claims 1, 8 and 10 were rejected under 35 U.S.C. § 103(a) as unpatentable over Japanese Patent No. 57-26010 to Maruyama et al. (Maruyama) in view of U.S. Patent No. 3,323,584 to Serratto. Claims 1, 8 and 10 were also rejected under 35 U.S.C. § 103(a) as unpatentable over Maruyama in view of Serratto, and further in view of U.S. Patent No. 2,884,228 to Jorgensen. Claims 1-5, 8 and 10 were rejected under 35 U.S.C. § 103(a) as unpatentable over Maruyama in view of Serratto, and further in view of Japanese Patent No. 58-122213 to Egawa. Claim 6 was rejected under 35 U.S.C. § 103(a) as unpatentable over Maruyama in view of Serratto, and further in view of German Patent No. 41 19 474 to Adam Opel AG (Opel). Claims 7 and 9 were rejected under 35 U.S.C. § 103(a) as unpatentable over Maruyama in view of Serratto, and further in view of U.S. Patent No. 5,502,251 to Sarbach. These rejections are respectfully traversed in view of the above amendments and the following remarks.

The present invention relates to a motor vehicle air conditioner that is able to supply temperature-controlled air to four different zones in the vehicle, e.g., the driver area, front passenger area, and the left and right rear areas. To date there has been no air conditioner that provides a single compact air conditioner for supplying temperature conditioned air to four different interior areas of a vehicle. In particular, Applicants' independent claim 1 recites a combination of features including "an air-mixing space ... being divided into four individual mixing spaces by at least one partition wall, each individual mixing space including at least two air-stream control elements adapted for mixing air to a certain temperature ..., at least one of the air-stream control elements in each individual mixing space including a cold-air flap in one of the cold-air ducts and at least one of the air-stream control elements in each individual mixing spaces including a warm-air control element arranged directly on an outlet side of the heater; wherein the warm-air control element includes a plurality of moveable lamellae adapted to be configured in a closed position covering a sub-region of the outlet side of the heater of a respective individual mixing space."

Maruyama shows a vehicle air conditioner that is divided downstream from the heater body into an upper and a lower area, so that air of different temperature can be directed to the head area and the foot area. Maruyama discloses a mixing damper that is arranged on the air outlet side of the heater body at the upper edge thereof, and an

additional mixing damper at the bottom edge of the heater body. However, Maruyama's mixing dampers block either the cold air bypass or the warm air issuing from the heater body.

Serratto and Jorgensen both relate to air conditioners for buildings, and essentially have nothing in common with a car air conditioner. Insofar as Serratto's and Jorgensen's heater body and cooler body are arranged in parallel, these building air conditioners are fundamentally not comparable to air conditioners for a motor vehicle. Additionally, the space available in the motor vehicle is extremely small, so that air conditioners for cars must be very compact in construction and are therefore constructed very differently from air conditioners for buildings. Therefore, one of ordinary skill in the art at the time of Applicants' invention, would not use the features of air conditioners for buildings in a car air conditioners. Applicants also respectfully submit that although the use of slatted dampers is known in building air conditioners, it is not known in air conditioners for vehicles.

Claim 1 recites "four individual mixing spaces." Egawa shows a motor vehicle air conditioner system capable of supplying only two interior area, namely the driver and front-seat passenger areas, with air of different temperatures. Egawa's air conditioner is divided into two halves in back of the evaporator by a separating wall. Egawa fails to teach or suggest how a compact air conditioner for a vehicle can be constructed in which four different areas can be supplied with air at different temperatures. None of the cited prior art, whether considered individually or in combination, teach or suggest Applicants' four-zone air conditioner for a vehicle.

It is respectfully submitted that the rejections are the result of combining individual features that are separately obtained from different patents. Rather than being suggested by the prior art, the motivation for this combination is based exclusively on obtaining a device having the features of the present invention. For example, it is not apparent why one of ordinary skill in the art would install Serratto's slatted dampers in an air conditioner according to Maruyama, inasmuch as Serratto teaches individual shut-off dampers (Fig. 2). There is simply no incentive in the prior art for using slatted dampers, even if one of ordinary skill in the art were to consider the combination of Maruyama and Serratto.

Even if one of ordinary skill in the art should hit upon the idea of replacing the mixing dampers 15 and 16 of the air conditioner of Maruyama with Serratto's slatted dampers, a proposition that Applicants do not concede, they would not arrive at the subject

of the invention. For example, Serratto's slatted damper, which would replace the damper 15, would cover both the bypass and the upper half of the heater body and then could only simultaneously release air in the bypass and the upper half of the heater body. Serratto's slatted damper would then have to be divided again into two parts; however, this would destroy the advantages of Maruyama's air conditioner, namely using only one mixing damper 15 or 16 to mix the cold and warm air as desired.

The disclosures of Opel and Sarbach are cited for teachings of a particular lamellae configuration and plural heater units, respectively. Neither of these references overcome the deficiencies of Maruyama, Serratto and Egawa, *supra*.

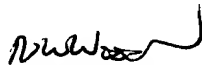
It is also respectfully submitted that the disadvantages of the state of the art, listed in the description of the related art, are equally applicable to the references cited in the Office Action.

Thus, it is respectfully submitted that claim 1 is allowable over the applied prior art for the reasons discussed above. Claims 3-9 and 11 are also allowable insofar as they depend, either directly or indirectly, from claim 1, and therefore recite the same combination of allowable features, as well as reciting additional features the further distinguish the present invention over the prior art.

In summary, Applicants submit that the pending claims are now in condition for allowance. An early notice to this effect is earnestly solicited. Should there be any questions regarding the application, the Examiner is invited to contact the undersigned representative at the local telephone number below.

Respectfully submitted,

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